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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,401	11/21/2003	Steven R. Sedlmayr	AUO1011	3331

7590 03/03/2005

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EXAMINER	
FINEMAN, LEE A	

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/719,401	SEDLMAYR, STEVEN R.	
	Examiner	Art Unit	
	Lee Fineman	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *51-124* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *51-124* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/8/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to an amendment filed 8 December 2004 in which claims 51, 60, 69, 78, 88-103, 105-106 and 115 were amended. Claims 51-124 are pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 51-61, 65, 68-79, 83, 86, 88-98, 102, 105-116, 120 and 123 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurematsu et al., U.S. Patent No 5,267,029 in view of Konno et al., U.S. Patent No 4,497,015 and Himuro, Japanese Patent Application Publication 61-090584. 60, 78, 97 and 115

Regarding claims 51-57, 59-61, 65, 69-75, 77-79, 83, 88-94, 96-98, 102, 106-112, 114-116 and 120, Kurematsu et al. disclose in fig. 2 a system and method of producing a modulated beam of electromagnetic energy/light comprising

[a] means (13) for providing a substantially collimated primary beam of electromagnetic energy/light having a predetermined range of wavelengths;

[b] means (in 12) for resolving from the substantially collimated primary beam of electromagnetic energy/light (into S_W);

[c] means (in 12) for forming a substantially collimated initial beam (S_W) of electromagnetic energy/light having substantially the same selected predetermined orientation

(S) of a chosen component of electromagnetic wave field vectors substantially across the substantially collimated initial beam of electromagnetic energy/light;

[d] means (11, 7) for separating the substantially collimated initial beam of electromagnetic energy/light into two or more substantially collimated separate beams of electromagnetic energy/light (S_R, S_G), each of the substantially collimated separate beams of electromagnetic energy/light having a selected predetermined orientation of a chosen component of electromagnetic wave field vectors and includes means (11, 7) for separating the substantially collimated initial beam of electromagnetic energy/light into two or more substantially collimated separate beams (S_R, S_G) of electromagnetic energy/light whereby each of the substantially collimated separate beams of electromagnetic energy/light has substantially the same selected predetermined orientation (S) of the chosen component of the electromagnetic wave field vectors substantially across each of the substantially collimated separate beams of electromagnetic energy/light as that of the other substantially collimated separate beams of electromagnetic energy/light;

[e] means (6, 8), which is a liquid crystal device, for altering the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of a plurality of portions of each of the substantially collimated separate beams of electromagnetic energy/light by passing the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy/light through a respective one of a plurality of altering means in a single direction (fig. 2) whereby the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy/light is altered in response to a stimulus

means by applying a signal means to the stimulus means in a predetermined manner as the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy/light passes through the respective one of the plurality of means for means for altering the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors (column 6, line 53-column 7, line 8);

[f] means (15) for combining each of the substantially collimated altered separate beams of electromagnetic energy/light with the other substantially collimated altered separate beams of electromagnetic energy/light into a substantially collimated single collinear beam of electromagnetic energy/light without substantially changing the altered selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy/light (fig. 2);

[g] means (5) for resolving from the substantially collimated single collinear beam of electromagnetic energy/light a substantially collimated first resolved beam of electromagnetic energy/light having substantially a first selected predetermined orientation of a chosen component of electromagnetic wave field vectors and a substantially collimated second resolved beam of electromagnetic energy/light having substantially a second selected predetermined orientation of a chosen component of electromagnetic wave field vectors, whereby the first and second selected predetermined orientation of the chosen component of the electromagnetic wave field vectors are different from one another (fig. 2);

and further a means (1) for passing one of the substantially collimated resolved beams (P_G and P_R) of electromagnetic energy from step [g] to a projection means (not shown) and a

means (11, 7) for adjusting the electromagnetic/light spectrum of at least one of the separate beams of electromagnetic energy/light in which the means for adjusting the electromagnetic/light spectrum of at least one of the separate beams of electromagnetic energy/light includes means for adjusting a predetermined range of wavelengths (the dichroic mirrors filter specific wavelengths e.g. red) and a magnitude (in so far as the magnitude of the remove wavelength is adjusted to zero) of at least one of the separate beams of electromagnetic energy/light.

Kurematsu et al. disclose the claimed invention except for the beam being a substantially uniform flux intensity substantially across the beam of electromagnetic energy/light and a rectangular cross sectional area and explicitly stating how the beam is resolved in polarization converting module (12), i.e., the means (in 12) for resolving from the substantially collimated primary beam of electromagnetic energy/light a substantially collimated primary first resolved beam of electromagnetic energy/light having substantially the first selected predetermined orientation of a chosen component of the electromagnetic wave field vectors and a substantially collimated primary second resolved beam of electromagnetic energy/light having substantially a second selected predetermined orientation of a chosen component of the electromagnetic wave field vectors, whereby the first and second selected predetermined orientation of the chosen component of the electromagnetic wave field vectors are different from one another and further including means for passing one of the substantially collimated primary resolved beams of electromagnetic energy/light through a means for changing a selected predetermined orientation of a chosen component of electromagnetic wave field vectors and changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of one of the substantially collimated primary resolved beam of electromagnetic energy to match

substantially the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the other substantially collimated primary resolved beam of electromagnetic energy; and the means (in 12) for forming from the substantially collimated primary first resolved beam of electromagnetic energy/light and the substantially collimated primary second resolved beam of electromagnetic energy/light a substantially collimated initial beam of electromagnetic energy/light having substantially the same selected predetermined orientation of a chosen component of electromagnetic wave field vectors substantially across the substantially collimated initial beam of electromagnetic energy/light. Kurematsu et al. does state in column 4, lines 21-23, that the polarization converting module may be identical to Japanese Laid-open Patent Application No. 90584/1986.

Himuro teaches a polarization converting module (7, 18 and 19) in fig. 1 including a means (7) for resolving from the substantially collimated primary beam of electromagnetic energy/light a substantially collimated primary first resolved beam (L_S) of electromagnetic energy/light having substantially the first selected predetermined orientation (S) of a chosen component of the electromagnetic wave field vectors and a substantially collimated primary second resolved beam (L_P) of electromagnetic energy/light having substantially a second selected predetermined orientation (P) of a chosen component of the electromagnetic wave field vectors, whereby the first and second selected predetermined orientation of the chosen component of the electromagnetic wave field vectors are different from one another (S versus P) and further including means (19) for passing one of the substantially collimated primary resolved beams (L_P) of electromagnetic energy/light through a means (19) for changing a selected predetermined orientation of a chosen component of electromagnetic wave field vectors and changing the

selected predetermined orientation (to S) of the chosen component of the electromagnetic wave field vectors of one of the substantially collimated primary resolved beam of electromagnetic energy to match substantially the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the other substantially collimated primary resolved beam of electromagnetic energy; and a means (7, 18 and 19) for forming from the substantially collimated primary first resolved beam of electromagnetic energy/light and the substantially collimated primary second resolved beam of electromagnetic energy/light a substantially collimated initial beam (fig. 1) of electromagnetic energy/light having substantially the same selected predetermined orientation (S) of a chosen component of electromagnetic wave field vectors substantially across the substantially collimated initial beam of electromagnetic energy/light. It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the polarization converting module 12 of Kurematsu et al. with that of Himuro to improve the utilization factor of light from a light source (Himuro, abstract). Further, Konno et al. disclose a light illumination device (fig, 5) which produces a primary beam (at M) which has a substantially uniform flux intensity substantially across the initial beam of light (column 5, lines 43-52) and has a rectangular cross sectional area (using lens element 102, fig. 3; column 3, lines 5-8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the light source 13 of Kurematsu et al. with that of Konno et al. to have a more uniform intensity light beam and provide a more consistent image. The method of utilizing the structure of the claim is inherent therein.

Regarding claims 58, 68, 76, 86, 95, 105, 113 and 123, Kurematsu et al. further discloses in fig. 2 a system and method for producing a modulated beam of light includes a means (10, 11

and 7) for separating the substantially collimated initial beam (S_W) of electromagnetic energy/light into two or more substantially collimated separate beams (S_R and P_B (column 6, lines 46-52)) of electromagnetic energy/light whereby each of the substantially collimated separate beams of electromagnetic energy/light has a substantially different selected predetermined orientation of the chosen component of the electromagnetic wave field vectors substantially across each of the substantially collimated separate beams of electromagnetic energy/light as that of the other substantially collimated separate beams of electromagnetic energy/light; and further comprising means (4 or 8) for removing from the substantially collimated primary beam of electromagnetic energy/light at least a predetermined portion (S_R and P_B) of a predetermined range of wavelengths and directing the removed portions to an absorption means (not shown).

3. Claims 62-64, 80-82, 99-101 and 117-119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurematsu et al. in view of Konno et al. and Himuro as applied to claims 51, 69, 88 and 106 above, and further in view of Southwell, U.S. Patent No. 4,312,570.

Kurematsu et al. in view of Konno et al. and Himuro as applied to claims 51, 69, 88 and 106 above disclose the claimed invention except for wherein step [c] further comprises means for reflecting one of the substantially collimated primary resolved beams of electromagnetic energy/light from one or more reflecting means, each of the reflecting means having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors; wherein means for reflecting one of the substantially collimated primary resolved beams of electromagnetic energy/light from one or more reflecting means, each of the

reflecting means having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors includes means for reflecting one of the substantially collimated primary resolved beams of electromagnetic energy/light from one or more planar reflecting surface with a dielectric coating, each planar reflecting surface with a dielectric coating having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors; and wherein means for reflecting one of the substantially collimated primary resolved beams of electromagnetic energy/light from one or more reflecting means, each of the reflecting means having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors includes means for reflecting one of the substantially collimated primary resolved beams of electromagnetic energy/light from one or more mirrors having a thin film dielectric material, each mirrors having a thin film dielectric material having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors. Southwell teaches a mirror (figure) which is a reflecting means having means (f_1-f_4) for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors (column 1, lines 49-64), which are one or more planar reflecting surface with a dielectric coating, each planar reflecting surface with a dielectric coating having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors. Further Southwell teaches that his mirror is an equivalent in the art to a wave/phase plate (column 1, lines 31-34). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use mirrors of Southwell instead of a half wave plate in the system of Kurematsu et al. in view of Konno et al. and Himuro to

provide a more flexible system by being able to direct or redirect the beam along a different beam path while maintaining the change of the selected predetermined orientation.

4. Claims 66-67, 84-85, 103-104 and 121-122 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurematsu et al. in view of Konno et al., Himuro and Southwell as applied to claims 62, 80, 99 and 117 above, and further in view of Lee, U.S. Patent No. 5,121,983.

Kurematsu et al. in view of Konno et al., Himuro and Southwell as applied to claims 62, 80, 99 and 117 above disclose the claimed invention except for further comprising means for removing from at least one of the beams of electromagnetic energy at least a predetermined portion of a predetermined range of wavelengths and directing the removed portions to an absorption means. Lee teaches a projector (fig. 3) with filter means (J) for removing and absorbing from at least one of the beams of electromagnetic energy at least a predetermined portion of a predetermined range of wavelengths (column 4, lines 35-37). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the filter of Lee to the system of Kurematsu et al. in view of Konno et al., Himuro and Southwell to remove the infrared rays and reduce the heat of the system.

5. Claims 87 and 124 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurematsu et al. in view of Konno et al. and Himuro as applied to claims 70 and 88 above, and further in view of Nishida et al., U.S. Patent No 5,295,005.

Kurematsu et al. in view of Konno et al., as applied to claims 70 and 88 above disclose an illumination system with a light source but are silent to the type of light source and whether it

includes providing a primary beam of ultraviolet. Nishida et al. teaches using a metal-halide light source (column 4, lines 42-44), which inherently includes ultraviolet light, in a projector system. It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the light source of Kurematsu et al. in view of Konno et al. and Himuro with a metal-halide light source, as suggested by Nishida et al., to provide high luminance and a long life span (Nishida, column 3, lines 26-27).

Response to Arguments

6. Applicant's arguments with respect to claims 51-124 have been considered but are moot in view of the new ground(s) of rejection.

7. It is noted by the Examiner that the objections to the specification and drawings made in the previous Office Action have been withdrawn due to amendment by the Applicant.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LAF
February 23, 2005

MARK A. ROBINSON
PRIMARY EXAMINER